

M/T ATHOS I Natural Resource Damage Assessment

RESTORATION IDEA FORM

Andrew T. Manus
Director, Conservation Programs
The Nature Conservancy
Tel: 302.684.5351
amanus@tnc.org

703 Chestnut Street
Milton, Delaware 19968

Restoration Idea: *Benthic Mapping: Biological Component*

The lack of mapping of benthic habitat resources was identified as a critical gap in the in the vital information necessary to respond to the recent oil spill in the Delaware Bay. To increase the understanding of the Delaware Bay the Department of Natural Resources and Environmental Control (DNREC), Delaware Coastal Programs Section initiated the Delaware Bay benthic and sub-bottom mapping project. The mission of this project is: "To identify and map the benthic habitat and sub-bottom sediments of the Delaware Bay, and supply this information in a form decision makers and stakeholders can easily use that will aid them in their efforts to manage and conserve the Delaware Bay's resources." The Delaware Chapter of The Nature Conservancy supports this need to identify and protect the biodiversity of the Delaware Bay.

The Need

While we have made many strides in protecting and restoring coastal habitats along the Delaware Bay such as tidal wetlands, the conservation of the undersea habitat of our ocean and estuaries has received little attention. There are serious gaps in the scientific data. More consideration must be given to benthic habitat (bottom of the bay) when establishing goals for conservation and restoration. Damage from the M/T ATHOS I on benthic habitat was considered considerable but difficult to fully assess.

Clams, worms and other benthos (animals that live on the bottom of the bay) are important indicators of the health of the estuary and show the impact of environmental stressors. In order to be able to use these natural communities as benchmarks to assess the damage from oil spills and other environmental insults, we must understand their diversity, status and location. Unlike water quality samples, which are a quick snapshot in time, benthic community health reflects how water quality has impacted a biological community over a period of time.

Due to difficulties in mapping and assessing these habitats, they are often overlooked. Yet these habitats are critical to the protection of commercial fisheries, a multi-million dollar tourism industry and support largely unknown biological diversity. Data about the Delaware Bay's benthic habitat will better inform both resource managers and future natural resource damage assessment teams on improved marine protection strategies that will allow for improved collaborative efforts to contain oil spills to protect the Bay's benthic resources.

2. Establish quarantine colonies of herbivores in North America and conduct host specificity tests
3. Develop a survey of stakeholders to gain input into release decisions
4. Write petition to USDA, APHIS and state agencies to allow field release (if results are satisfactory)
5. Select field release sites and begin monitoring

Completion of the host specificity work could be accomplished within 4 years, followed by an additional year to write the petition to USDA, state agencies, and selection of field release sites.

Funding needs: Annual costs for this second phase are anticipated at \$100K, requiring a total of \$500K for completion of this program.

Contacts:

Andrew Milliken
Atlantic Coast Joint Venture Coordinator
U.S. Fish and Wildlife Service
300 Westgate Center Drive
Hadley, MA 01035
phone: 413-253-8269, fax 413-253-8487
andrew_milliken@fws.gov

Contacts:

David Carter, Program Manager
DNREC/DSWC/DSP
89 Kings Highway
Dover, Delaware 19901
Tel: 302.739.9283
David.carter@state.de.us

Dr. Robert Scarborough
Research Coordinator
DNREC/DSWC/DNERR
818 Kitts Hummock Road
Dover, Delaware 19901
Tel: 302.739.3436
bob.scarborough@state.de.us

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Restoration Idea: *Use the Atlantic Coast Joint Venture to identify wetland habitats that should be acquired to increase protection of bird/waterfowl habitat.*

Two recent oil spills in the Atlantic Coast Joint Venture have resulted in significant criminal fines from violations of the Migratory Bird Treaty Act (MBTA) being placed in the North American Wetlands Conservation Fund to be used for wetland-associated migratory bird conservation projects. Joint venture staff can play a key role in leveraging these funds for wetland conservation in their joint ventures and beyond. No criminal responsible party has been identified in the M/T Athos I oil spill at this time. However, the process used by the ACJV to identify and acquire important bird and waterfowl habitats affected by the oil spill merits consideration. The ACJV has a track record identifying habitat projects that have a demonstrated connection between the natural resource injuries/losses to the public and the proposed restoration efforts.

Attached is a PDF file that contains a schematic of the process that ACJV staff use to work with partners to submit grant applications under the North American Wetlands Conservation Act (NAWCA) for grants that go through a rigorous, systematic and scientific process for funding projects with the highest wetland and migratory bird habitat conservation in areas that have been affected by oil spills.

→ 1. ^{U.S.} Atlantic Coast Joint Venture → Delaware
→ Atlantic Coast Joint Venture

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Restoration Idea: *Biological control of Phragmites*

Problem: The continued invasion of introduced *Phragmites* into wetlands across much of North America threatens native plant communities and associated animal species, particularly marsh birds, shorebirds and waterfowl. The invasion of introduced *Phragmites* also threatens the existence of endemic native North American *Phragmites* genotypes. Containment of small or local populations can be achieved by repeated herbicide application (\$60-225 per acre), but large-scale control efforts are cost prohibitive. Therefore, the species is continuing to invade marshes across North America with disastrous effects on native organisms.

The Need

A Potential Solution: Biological control, the release of host-specific herbivores from the native range of an invasive plant to reduce invasive populations, has been extremely successful in controlling purple loosestrife and other invasive species. With funding provided through NOAA, USFWS, the NJ PSEG, and the Bureau of Reclamation, the Ecology and Management of Invasive Plants Program at Cornell University has evaluated the potential of biological control for *Phragmites*. Efforts from 1998-2005 have focused on evaluation of native North American and European herbivores of *Phragmites* as potential biological control agents. The findings of the past 7 years can be summarized as follows:

1. There is no North American species that can be used as a biocontrol agent.
2. Several European stem mining species (moths and flies) severely damage *Phragmites* in its native range.
3. Preliminary host specificity tests (using native and introduced *Phragmites* genotypes) show these species appear to be specific to the invasive genotype.

Future Work: Work in Europe suggests that implementation of a biological control program targeting invasive *Phragmites* genotypes, without threatening native *Phragmites* genotypes, is feasible. To gain approval by USDA and state authorities for introduction of European herbivores to North America the following work program has to be accomplished:

1. Develop a full host specificity test plant list (approx. 50 native species) with a particular focus on native *Phragmites* genotypes